

CLAIMS

1. A method comprising:
determining that a desired end state for an autonomic computing system can
- 5 be reached using conditional relationship specifications; and
placing the autonomic computing system in the desired end state.

2. A method comprising:
- determining that a desired end state for an autonomic computing system cannot be reached;
- determining that an acceptable sub-state can be reached using at least one
- 5 of priority ratings, conditional relationship specifications, and alternative relationship specifications; and
- placing the autonomic computing system in an acceptable state.
3. The method of claim 2, wherein the priority ratings comprise an attribute
- 10 assigned to a policy definition that determines at least one of a selection of conflicting policy definitions and a sequence for applying the policy definitions.
4. The method of claim 3, wherein the attribute assigned to the policy definition is one of the following: mandatory, a numerical value, and not required.
- 15
5. The method of claim 2, wherein the conditional relationship specifications comprise policy definitions that are applied when the state of a specified resource meets a predetermined requirement.

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6. The method of claim 2, wherein the alternative relationship specifications comprise at least one of policy definitions, and conditional relationship specifications, that are applied when the state of a specified resource does not meet a predetermined requirement.

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7. A computer readable medium comprising computer instructions for performing the following:

determining that a desired end state for an autonomic computing system can be reached using conditional relationship specifications; and

5 placing the autonomic computing system in the desired end state.

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8. A computer readable medium comprising computer instructions for performing the following:

determining that a desired end state for an autonomic computing system cannot be reached;

5 determining that an acceptable sub-state can be reached using at least one of priority ratings, conditional relationship specifications, and alternative relationship specifications; and

placing the computing system in an acceptable sub-state.

10 9. The computer readable medium of claim 8, wherein the priority ratings comprise an attribute assigned to a policy definition that determines a sequence for applying the policy definition.

10. The computer readable medium of claim 9, wherein the attribute assigned to the policy definition is one of the following: mandatory, a numerical value, and not required.

11. The computer readable medium of claim 8, wherein the conditional relationship specifications comprise policy definitions that are applied when the state of a specified resource meets a predetermined requirement.

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12. The computer readable medium of claim 8, wherein the alternative relationship specifications comprise at least one of policy definitions and conditional relationship specifications that are applied when the state of a specified resource does not meet a predetermined requirement.

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13. An autonomic resource manager for an autonomic computing system, the autonomic resource manager comprising:
- memory for storing at least one policy definition;
 - a resource monitor, communicatively coupled with each resource in the
- 5 autonomic computing system, for monitoring, and communicating data with, each resource in the autonomic computing system;
- an equivalency definer, communicatively coupled with each resource in the autonomic computing system, and with the memory, for defining at least one equivalency representing at least one set of equivalent resources in the autonomic
- 10 computing system, and storing the at least one equivalency in the memory;
- a policy generator, communicatively coupled with the resource monitor and the memory, for providing in the memory a representation of a system-wide graph of available actions and at least one of: priority ratings, conditional relationship specifications, and alternative relationship specifications, corresponding with
- 15 resources in the autonomic computing system; and
- an automation engine, communicatively coupled with the resource monitor, with at least one resource in the autonomic computing system, and with the memory, for providing available actions to the at least one resource in the in the autonomic computing system in order for the autonomic computing system to
- 20 establish and maintain a desired end state.

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14. The autonomic resource manager of claim 13, further comprising:

a resource harvester, communicatively coupled with each resource in an autonomic computing system, with the resource monitor, with the equivalency definer, with the policy generator, and with the memory, for specifying underlying relationships between resources in the autonomic computing system via self discovery;

15. The autonomic resource manager of claim 13, wherein the priority ratings comprise an attribute assigned to a policy definition that determines a sequence for applying the policy definition.

16. The autonomic resource manager of claim 13, wherein the conditional relationship specifications comprise policy definitions that are applied if the state of a specified resource meets a predetermined requirement.

17. The autonomic resource manager of claim 13, the alternative relationship specifications comprise at least one of policy definitions and conditional relationship specifications that are applied when the complete desired end state of the system cannot be met.

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18. An autonomic computing system, comprising:
distributed resources; and
an autonomic resource manager, communicatively coupled with the
distributed resources, for determining that a desired end state for the autonomic
5 computing system cannot be reached, determining that an acceptable sub-state can
be reached using at least one of priority ratings, conditional relationship
specifications, and alternative relationship specifications, and placing the autonomic
computing system in an acceptable sub-state.
- 10 19. The autonomic computing system of claim 18, wherein the priority ratings
comprise an attribute assigned to a policy definition that determines a sequence for
applying the policy definition to the operation of the distributed resources.
20. The autonomic computing system of claim 18, wherein the conditional
15 relationship specifications comprise policy definitions that are applied if the state of a
specified resource meets a predetermined requirement.
21. The autonomic computing system of claim 18, wherein the alternative
relationship specifications comprise at least one of policy definitions and conditional
20 relationship specifications that are applied when the complete desired end state of the
system cannot be met.